Cherax (*Astaconephrops*) *minor* new species, a parastacid from the mountains of Irian Jaya (W. New Guinea), Indonesia (Crustacea: Decapoda: Parastacidae)

L.B. Holthuis

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L.B. Holthuis, c/o National Museum of Natural History, P.O. Box 9517, 2300 RA Leiden, The Netherlands.

Key words: *Cherax minor*; new species; Parastacidae; freshwater crayfish; Irian Jaya, Indonesia; West New Guinea.
A new species of parastacid crayfish, *Cherax (Astaconephrops) minor* is described from the central mountains of Irian Jaya (West New Guinea), Indonesia. Its small size distinguishes it from most other New Guinea crayfishes.

Introduction

Through the kindness of Miss Daisy Wowor, of the Museum Zoologicum Bogoriense, Bogor, Java, Indonesia, I was allowed to study an interesting collection of freshwater crayfish collected by Mr. A. Suyanto in the Wurigelebur Mountain region of Irian Jaya (West New Guinea), Indonesia. The collecting area is situated in the Balim River basin north of the Ibele River in central Irian Jaya. The most striking feature of the species is its small size; it is much smaller than *Cherax (Astaconephrops) monticola* found in the nearby Balim and Ibele rivers.

Description

Cherax (*Astaconephrops*) *minor* spec. nov.
(figs 1-2)

Material.— ♂ holotype (Museum Zoologicum Bogoriense): Sungai Kurao, Wurigelebur, Irian Jaya, 3°47'S 138°42'E, 21.x.1994, leg. A. Suyanto, cl. 35 mm, tl. 75 mm. Paratypes: 6 ♂♂ + 3 ♀♀ (Museum Zoologicum Bogoriense; RMNH); 4 ♂♂, same locality; 15.x.1994, leg. A. Suyant, cl. 22-33 mm, tl. 52-73 mm; 1 ♀, idem, cl. 25 mm, tl. 56 mm; 2 ♂♂, Wurigelebur, Irian Jaya, 14.x.1994, leg. A. Suyanto, cl. 15 and 22 mm, tl. 34 and 50 mm; 2 ovigerous ♀♀, idem, cl. 30 mm (in both specimens), tl. 69 and 70 mm.

Description of male.— The rostrum reaches about to the middle of the last segment of the antennular peduncle and to the base of the last segment of the antennal peduncle. It is about twice as long as wide at the base. The upper surface is flat and smooth with some scattered short hairs; the margins are slightly elevated and posteriorly end in the rostral carinae of the carapace. The lateral margins of the rostrum are almost straight in the basal part and slightly convex distally where they regularly taper towards the apex. No teeth are present on the margins except for two or three small subapical denticles on either side. The rostral carinae reach posteriorly some

ued posteriorly halfway to the cervical groove as postorbital carinae, which at their posterior end show a slight elevation. The postorbital carinae are flanked on the outside by a pitted groove. The antennal tooth is distinct and bluntly triangularly rounded. The cervical groove is distinct throughout. The median part of the carapace is smooth with some scattered pits; laterally there are some indistinct tubercles near the margin of the carapace and behind the base of the antennae. A row of small tubercles is placed immediately behind the lateral parts of the cervical groove.

The epistome is broadly triangular with a deep constriction at the base of the antennae; thereby the anterior part becomes broadly lance-shaped or obcordate, its surface is smooth. The posterior part is triangular with a truncated top; it shows tubercles in both baso-lateral parts, and it has the central part sunken. The anterior margin of the mouthfield is formed by a smooth rim. The basal segment of the antenna that causes the constriction in the epistome, carries the aperture of the antennal gland and has a sharp tooth on the anterior margin of the ventral surface.

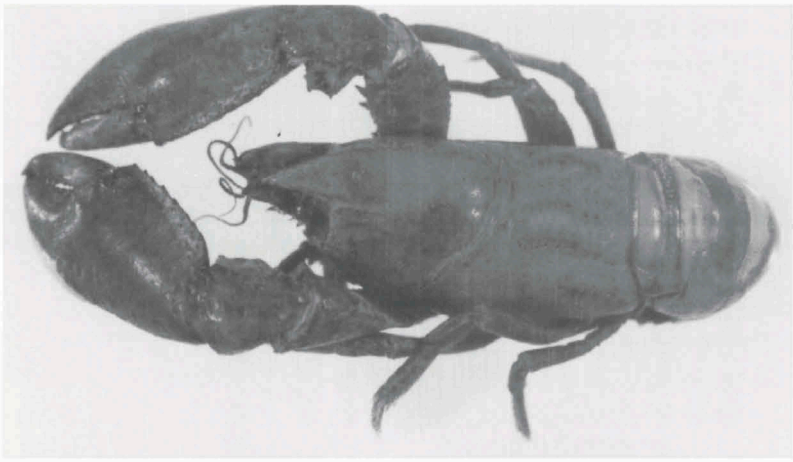
The abdomen is smooth with scattered pits.

The eyes are small. The cornea is darkly pigmented; it is shorter than the eyestalk and narrower than the base of the stalk.

The scaphocerite has the outer margin slightly convex in the distal part, but otherwise is straight. The final tooth is directed slightly outward and reaches distinctly beyond the lamella. The lamella is about semicircular; along its outer margin there is a broad and high, somewhat swollen sharply defined ridge. A second similarly broad ridge, but much shorter, is seen at the base of the scaphocerite; the two ridges are separated by a deep groove.

The first legs of the male are practically equal. The chela is less than twice as long as high, and much compressed, its depth being less than a fourth of its length. The fingers are shorter than the palm. The dactylus is of almost the same height throughout its length and only narrows slightly in its distal third; it ends in a sharp corneous tooth that is abruptly curved upward, standing almost perpendicular to the axis of the dactylus. Over its full length the cutting edge shows small granular teeth of about equal size. The fixed finger is triangular and merges gradually into the palm; at its base it is twice as high as the dactylus. Its top and cutting edge are similar to that of the dactylus. The palm is about 1.5 times as long as high, its upper surface is practically smooth, being only slightly pitted, and with a very few scattered but distinct tubercles in the extreme basal part. The upper margin of the palm shows a row of strong bluntly topped spines, flanked here and there with a few granules; numerous short hairs are present between the spines. As characteristic for this subgenus, the first cheliped of the adult male has a soft, decalcified swollen area in the distal part of the lower margin. This area extends from the middle or distal third of the fixed finger about to the middle of the palm. No second decalcified area is present on the lower palmar margin. The upper surface of the carpus is triangular and smooth; the anterior margin has a tooth on the inner end and two incisions near it; the inner margin shows some blunt, short and broad spines. The lower inner surface of the carpus is covered by a thick mat of rather long and dense hairs. The lower surface of

Fig. 1. *Cherax (Astaconephrops) minor* spec. nov., male paratype; A, animal in dorsal view; B, anterior part of carapace in oblique view; C, chelae of first chelipeds; A, × 1.1; B, C, × 3. Photographs R. Malherbe.



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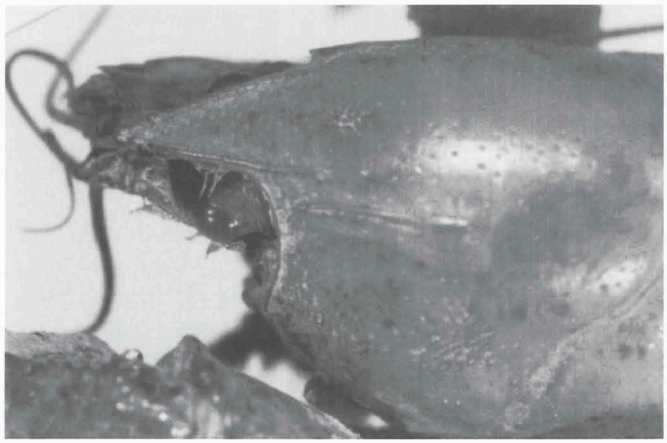

B

C

the segment shows a few large blunt tubercles. The upper margin of the merus is serrated in the middle part; the anterior of the teeth is largest and sharpest; it is placed a considerable distance behind the anterior margin of the merus; the serration ends posteriorly only slightly behind the middle of the merus. The merus has the outer surface smooth, but the lower margin shows two rows of teeth, two of the teeth of the outer row are distinctly larger than the rest.

The second legs reach about to the end of the scaphocerite. The fingers are slightly longer than the palm; they are of the same height. The carpus is slightly longer than the palm. The merus is about 1.5 times as long as the carpus. The ischium is half as long as the merus. The third leg reaches slightly farther than the second. The fingers are slightly shorter than the palm. The carpus is distinctly longer than the palm, $^2/_3$ as long as the merus, and almost twice as long as the ischium. The fourth leg reaches slightly beyond the base of the chela of the third. The dactylus ends in a corneous tip, followed on the posterior margin by numerous fine and short spinules; tufts of hair are placed on the outer surface. The propodus is twice as long as the dactylus and about 1.5 times as long as the carpus; it is rather high and carries many bristles along the lower margin. The merus is slightly longer than the propodus and has no dense setation. The fifth leg resembles the fourth, but is somewhat more slender.

In the female the chelae of the first pereiopods are equal, somewhat more than twice as long as broad and show no decalcified areas on the lower margin. The fingers are quite similar, and the dactylus is more than $^2/_3$ as high at the base as the fixed finger. In young males the first chelae resemble those of the female, or are slightly wider. In the male with cl. 15 mm no soft spot is present on the lower margin of the first chela, but in the one with cl. 22 mm, such a soft spot is already slightly visible.

Size.— The males examined have a carapace length between 15 and 35 mm, and a total length between 34 and 75 mm. The females have cl. 25-30 mm and tl. 56-70 mm; the two ovigerous females both have cl. 30 mm, while their tl. are 69 and 70 mm. The eggs are large and few (about 50), and have a diameter of 2-3 mm.

Colour.— The colour of the living specimens was said to be black. Preserved in alcohol the females and juvenile males are of a even pale brownish yellow; the adult males are of a darker greyish brown colour with the uncalcified parts strikingly pale.

Habitat.— The species was observed in clear water and found in small creeks, about 1 to 2 m wide and about 0.4 m deep; it also occurred in a small lake. The substrate on which the animals were taken consisted of stones mixed with gravel and sand. They were found hiding under the stones. The localities are situated in a mountainous area with an altitude between 1200 and 1300 m. Small freshwater crabs were also present in the Wurigelebur collection, although not in the same lots with the crayfish.

Remarks.— The presence of decalcified areas on the lower margin of the chelae of the first pair of legs in the adult males shows that the species belongs to the subgenus *Astaconephrops*. The New Guinea species of this subgenus so far numbered four (*Cherax* (*Astaconephrops*) *albertisii* (Nobili, 1899); *C.* (*A.*) *lorentzi* J. Roux, 1911, with subspec. *aruanus* J. Roux, 1911; *C.* (*A.*) *misolicus* Holthuis, 1949, and *C.* (*A.*) *monticola* Holthuis, 1950). *Cherax* (*A.*) *divergens* Holthuis, 1950, is a junior synonym of *C.* (*A.*) *albertisii*, being based on a fullgrown male specimen of that species. The Australian

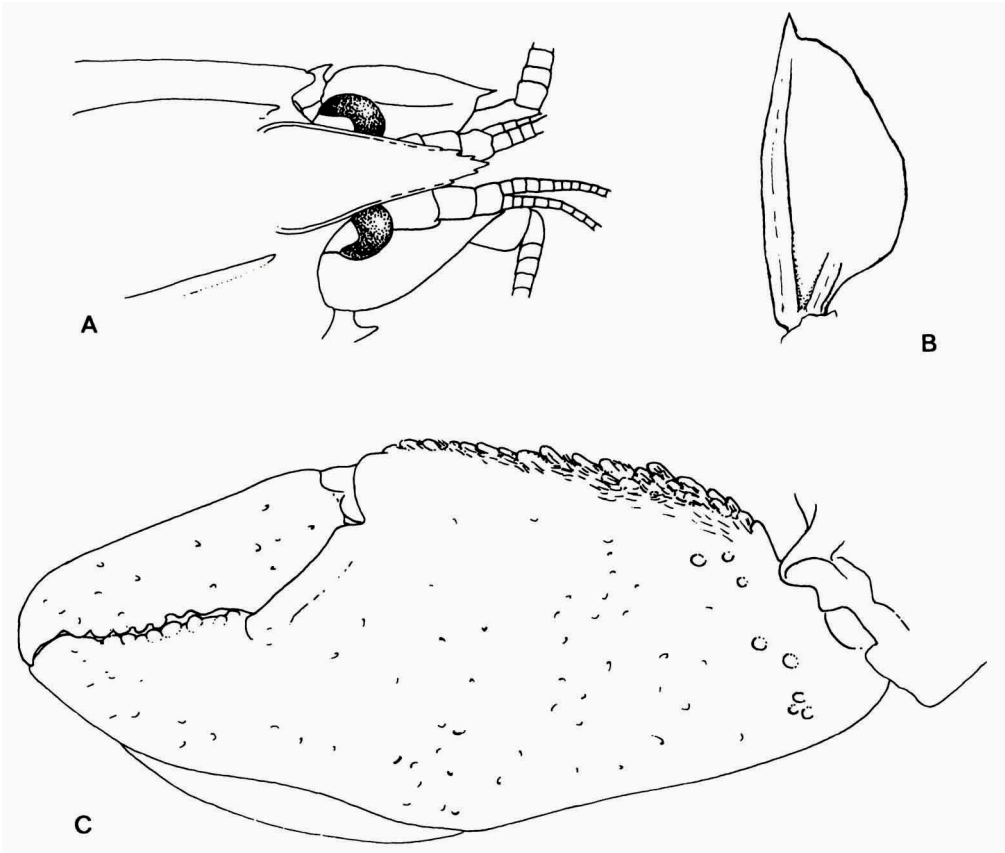

Fig. 2. *Cherax (Astaconephrops) minor* spec. nov.; A, B, female; C, male; A, anterior part of carapace; C, chela of first cheliped; B, scaphocerite; A, C, × 4; B, × 8.

Cherax quadricarinatus (von Martens, 1868), the "Red Claw", also belongs in this subgenus. As indicated by its name, the present species is much smaller than most of the known New Guinea species of *Astaconephrops*. *C. (A.) albertisii* is known to attain a total length of 168 mm, *C. (A.) lorentzi* of 154 mm , *C. (A.) lorentzi aruanus* of 114 mm, and *C. (A.) monticola* of 177 mm, an ovigerous female of the latter species had a total length of 131 mm. Only *C. (A.) misolicus* seems to be of about the same size as *C. (A.) minor* as the largest total length reported for it is 60 mm, but no ovigerous females are known from this species.

Apart from the size, *C. minor* resembles *C. misolicus* in the rather feeble development of the rostral and postorbital ridges. It differs from *C. misolicus* in having the scaphocerite with the lamella more semicircular and less triangular. In *C. misolicus*, furthermore, the teeth of the rostrum are larger and occupy a larger part of the lateral margin than in *C. minor*. Behind the cervical groove in *C. misolicus* distinct, though small, spines can be seen, in *C. minor* there only are some tubercles there. *C. minor* differs from all *Astaconephrops* species, with the exception , of *C. monticola* in that it lives at high altitudes. *C. monticola* is known from altitudes between 1700 and 3300 m, all the other species are from less than 100 m altitude. *C. monticola* differs from *C.*

minor not only by its size, but also by that the large chelipeds of the adult males are relatively narrower and have two decalcified spots on the lower margin of the propodus.

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